

**POINTE DU CHÊNE SANITARY
SEWER SYSTEM IMPROVEMENTS
EIA REGISTRATION DOCUMENT**

Prepared for:



Greater Shediac Sewerage Commission
25 Cap-Brulé Rd.
Boudreau-Ouest, N.B.
E4P 6H8

Prepared by:



Crandall Engineering Ltd.
1077 St. George Blvd., Suite 400
Moncton, N.B.
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August 4, 2017
Project No. 17219-1



Crandall File: 17219-1
August 17, 2017

N.B. Department of Environment and Local Government
P. O. Box 6000
Fredericton, NB
E3B 5H1

ATTENTION: Mr. David Maguire - Manager, Environmental Assessment Section

Dear Sir:

**EIA Registration Document
Pointe du Chêne Sanitary Sewer System Improvements
Pointe du Chêne, New Brunswick**

In regard to the above, Crandall Engineering Ltd. is pleased to provide the Department with six (6) copies of the EIA Registration Document for your review and comments, on behalf of our Client, the Greater Shediac Sewerage Commission.

Please do not hesitate to contact us should you require any additional information.

Yours very truly,

CRANDALL ENGINEERING LTD.

Chris Gallant, P. Eng.
Project Engineer

C. Mr. Joey Frenette, B. Sc., PTech, General Manager - GSSC

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Greater Shediac Sewerage Commission

EIA Registration Document

Submitted to:

**PROVINCE OF NEW BRUNSWICK
DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT
P.O. Box 6000
Fredericton, N.B.
E3B 5H1**

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- Appendix A: 1:50,000 Scale Map & Location Plan**
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- Overall Site Plan**
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(Crandall Engineering Ltd. Drawing 17219-1P-C102)
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Crandall Engineering Ltd. - August 4, 2017

REGISTRATION FORM

**PURSUANT TO SECTION 5 (2) OF
THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION 87-83
CLEAN ENVIRONMENT ACT**

1.0 THE PROPONENT

(i) Name of Proponent: Greater Shediac Sewerage Commission

(ii) Address: 25 Cap-Brulé Rd.
Boudreau-Ouest, N.B.
E4P 6H8

(iii) Chief Executive Office:

Name: Mr. Joey Frenette, B. Sc., P.Tech
Official Title: General Manager
Telephone: 506-532-7025
Fax: 506-533-7041
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(iv) Principal Contact Person for purposes of Environmental Impact Assessment:

Name: Chris Gallant, P. Eng.
Official Title: Project Engineer - Crandall Engineering Ltd.
Telephone: 506-857-2777
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(v) Property Ownership:

As indicated on the drawings in Appendix A, the proposed sanitary sewer renewal will follow the current sewer location on Saint John Street. However, it is noted that the current street location differs from the actual right-of-way in some locations, and easements are currently in place in these locations. Therefore, in addition to portions of the work located within the right-of-way, it is anticipated that the following PIDs will be impacted by the sewer itself: 01053404, 70341003, and 00861765.

These properties are not owned by the GSSC; however, as noted it is understood that easements are currently in place. In addition, it is noted that the pipe renewal will be located near the right-of-way and there is the potential for construction activities to impact additional properties (Refer to Section 2.0 (vi) for the preliminary list of potentially affected properties). The GSSC will carry out an evaluation of their current easements to confirm

where existing easements are in place, and if additional easements may be required for construction. If it is determined that additional easements are necessary, the GSSC will acquire such easements.

2.0 THE UNDERTAKING

(i) Name of the Undertaking:

Pointe du Chêne Sanitary Sewer System Improvements, Greater Shediac Sewerage Commission.

(ii) Project Overview:

The Greater Shediac Sewerage Commission's (GSSC's) wastewater collection piping on Saint John Street in Pointe-du-Chêne consists of concrete piping that is over 40-years old and requires replacement. Based on its age as well as recent infiltration investigations carried out by Crandall over the past few years, it was determined that this section of piping is in poor condition and is a high priority for renewal. As a result, the GSSC proceeded to secure funds for this project through Gas Tax funding.

Therefore, in order to maintain the integrity of the GSSC's wastewater system and help in reducing the potential for overflows due to infiltration in the downstream system, it is necessary to renew the sewer system in this area. The project will therefore include the following:

- Replacement of existing concrete sewer piping with new PVC sewer piping;
- Replacement of existing manholes;
- Replacement of sanitary service pipes, from main line up to right-of-way;
- Restoration of pipe trench, including crushed rock roadway restoration in trench location;
- Property restoration where required.

Although the project is located primarily along the existing roadway, a small portion of the project is located within the 30m buffer of a provincially significant wetland (PSW) as indicated on the attached drawings (Appendix A). It is noted that the intent is to install the new sewer pipe along the same route as the existing sanitary sewer. Potential impacts and mitigation measures will be discussed further in Sections 4 and 5 of this document.

(iii) Purpose / Rationale / Need for the Undertaking:

As noted, the current sewer piping on Saint John Street is over 40 years old and requires replacement due to its age and condition.

Flow monitoring and video inspections of the Saint John Street sewer system showed poor pipe conditions and indications of infiltration (such as staining on pipes, etc.), salt water intrusion, and surface scaling on the aging concrete piping were also noted. Based on this, spot repairs or other less intrusive repair strategies are not considered to be sufficient in this case.

Due to the condition of the pipes, high wastewater flows from upstream portions of the sewer system, and known infiltration in the piping on Saint John Street, this area is suspected to be a significant contributor to overflow events in downstream areas of the collection system. In addition to straining the collection system and increasing pumping time at downstream lift stations, high flows due to infiltration also increase the loading on the wastewater treatment plant (WWTP). By replacing the aging concrete piping with a new PVC sewer line, extraneous flows are expected to be greatly reduced from this section of the system. In turn, by working to reduce infiltration in the wastewater system through this project and other infiltration reduction strategies, the anticipated benefits include reduced energy consumption due to a decrease in lift station pumping, and benefiting the WWTP's performance due to the reduced hydraulic loading and a longer retention time.

It is also noted that there is no communal water system in Pointe du Chêne; therefore, all residences in the area are supplied by individual residential wells. In addition to protecting the integrity of the sanitary sewer system, by proceeding with the sanitary sewer upgrades, nearby residential wells will also be protected by reducing the potential of groundwater contamination due to aging piping.

A “do-nothing” approach is not acceptable in this case since the existing collection system is at its end-of-life, is in poor condition, and is showing signs of infiltration. Without a timely renewal, the condition of the Saint John Street sewer will continue to deteriorate and allow additional infiltration into the sewer system.

Furthermore, there are many existing homes and cottages in the area of the proposed sewer renewal and little to no undeveloped land, limiting the possibility of re-routing the sewer without significantly impacting these residences. Therefore, it is not considered to be an option to re-locate the piping outside the PSW Buffer zone.

(iv) Project Location:

As identified in Section 1 (v), the proposed site is located within the right-of-way (PID 70496708), as well as PIDs 01053404, 70341003, and 00861765. The proposed project location extends from the intersection of Saint John Street and First Avenue, easterly along Saint John Street as shown, then southerly towards an existing manhole near the East end of Church Street. As previously noted, it is anticipated that the new sewer pipe will be installed following the same route as the existing sanitary sewer.

The three (3) enclosed Drawings 17219-1P-C100 to C102 (Appendix A of this document) show a 1:50,000 scale map of the site in reference to the existing features, the proposed sewer location over an aerial photograph, as well as a more detailed site plan.

The Saint John Street sewer renewal project is located in Pointe du Chêne, in south-east New Brunswick, approximately 40 km northeast of Moncton. Pointe du Chêne is located in the county of Westmorland and is part of the parish of Shediac.

The latitude and longitude of the portion of the site within the PSW 30m buffer are as follows (approximately):

- Latitude: 46.23972665, Longitude: -64.51493630

(v) Siting Considerations:

GENERAL SITING CONSIDERATIONS AND OTHER LOCATIONS CONSIDERED:

As previously noted, the intent is to replace the existing Saint John Street sanitary sewer with a new line in the same location. The surrounding properties are almost completely developed land, with many homes and cottages present, leaving no viable alternate route. In addition, maintaining the sewer main mostly along the existing roadway, as it currently is, allows continuous access for future maintenance activities. Furthermore, the piping in question is located at the downstream end of multiple upstream pipe networks, further restricting the location and elevation of the upgraded sewer. Therefore, it is necessary to keep this sewer line in its current location.

ZONING

Based on the September 28, 2016 zoning map obtained from the Southeast Regional Service Commission, the area of the proposed sewer renewal project is primarily zoned “Pointe du Chêne Residential”, with a small portion near the PSW zoned “Environmental Risk”.

Since the project consists of renewing the sanitary sewer in its current location, it is not foreseen that zoning will be of concern for this project. The GSSC will communicate with the planning commission to confirm.

WETLANDS

As shown on the attached drawings, there is a small portion of the project located within 30 m of a Provincially Significant Wetland. However, it is noted that work is not planned within 30 m of a mapped watercourse.

(vi) Physical Components and Dimensions of the Project:

LAND REQUIREMENTS

The attached Drawings in Appendix A show the overall location of the project relative to the environmental features of the region, including an aerial photograph view of the project site.

As part of the sewer renewal project, approximately 450m of existing concrete piping will be replaced with new PVC piping, including the installation of new manholes along the sewer route. It is anticipated that the pipe installation will be carried out using open trench construction.

Where the project consists of the replacement of sanitary sewer piping, and crosses through multiple properties, the total area of each property affected by the project is not representative of the project itself. Instead, it is anticipated that the construction footprint on each property will be as follows (approximately):

PID 00864322: 30 m ²	PID 70201546: 110 m ²
PID 70311832: 200 m ²	PID 00861583: 260 m ²
PID 70311840: 120 m ²	PID 01052091: 170 m ²
PID 70311857: 120 m ²	PID 00861765: 1110 m ²

PID 00863316: 100 m ²	PID 70287461: 120 m ²
PID 00862136: 80 m ²	PID 70236682: 50 m ²
PID 70237391: 100 m ²	PID 01052208: 60 m ²
PID 00861625: 140 m ²	PID 70207790: 70 m ²
PID 70341334: 110 m ²	PID 01053404: 1630 m ²
PID 00861864: 100 m ²	PID 70341003: 1130 m ²
PID 70344601: 110 m ²	PID 70496708: 2940 m ²
PID 70344619: 110 m ²	

Total project footprint (approx.): +/- 9,000 sq.m. (incl. +/- 1,700 sq.m. within PSW Buffer Zone)

It is understood that easements are currently in place for the existing piping; therefore, it is not anticipated that additional land acquisition and/or easements will be required. This will be confirmed during detailed design, once the final pipe route has been confirmed.

PHYSICAL COMPONENTS AND INFRASTRUCTURE

In order to carry out the sewer renewal project, the following components and infrastructure will be required:

- a. **New sewer piping and manholes:** The project consists of the installation of new 300 mm dia. PVC sewer piping and concrete manholes as shown on the attached drawings, including the replacement of existing services up to the right-of-way, and trench restoration. Installation of underground infrastructure will be done by conventional open trench excavation.

In order to manage sewage flows during construction, it will be required to work in sections and by-pass flows from the upstream manhole to the downstream manhole. This will require temporary pumps throughout construction. For further details, a detailed Sewage Management Plan has been prepared and included in Appendix B of this Document.

(vii) Construction Details:

The proposed upgrade of the Saint John Street collection network will be carried out via conventional open trench methods, including excavation and removal of existing piping and manholes, installation of new piping and manholes, renewal of service connections up to right-of-way, backfilling, and crushed rock road restoration within the trench footprint. The new piping and manholes will be tested as the work proceeds, and it will be a requirement of the specifications that the new sewer main be video inspected prior to being accepted. Prior to beginning ground-disturbing activities, silt fencing will be installed to protect the surrounding environment, and work carried out within the wetland buffer area (as indicated on the Drawings) will adhere to the WAWA permit that will be obtained from the NBDELG.

Based on past experience with similar projects in the area, it is anticipated that due to the close proximity to the coast, high water table will be one of the challenges faced during construction. Therefore, to minimize this impact, as well as impacts on the peak tourist season and the nearby PSW, it is intended to carry out the construction during the winter

months. However, it is still anticipated that trench de-watering will be required during construction; therefore, pumped water will be directed to a sedimentation pond to allow sediment to settle prior to discharge to the environment.

It will be very important to ensure that wastewater flows continue to be conveyed to the treatment plant throughout the project, by-passing the active work area during construction activities. To that end, the enclosed Sewage Management Plan has been developed to provide clear instructions on managing wastewater flows throughout construction (Refer to Appendix B for the Environmental Management Plan [EMP] and Sewage Management Plan). The final version of this document will be included in the project specifications and become part of the project's Contract documents.

Access to the site is via existing streets in the area. At this time, it is not anticipated that major detours will be necessary, as the work will be carried out in sections (manhole to manhole) following the existing sewer alignment. As work will be carried out during the winter, a lower volume of traffic and occupied residences are anticipated in the area (when compared with summer months); however, access will be maintained as much as possible for residents within the work area.

It is estimated that, from the start of the Tender Period to full commissioning of the upgraded sewer line, it will require roughly 7 to 8 working weeks, pending receipt of approval to proceed under the EIA registration. In order to achieve this, the following schedule is proposed (assuming that the comprehensive EIA Study is not required):

COMPONENT	APPROX. DURATION	START	END
1. EIA Registration and TRC Review	18 weeks	August 8, 2017	December 8, 2017
2. Engineering Design to Tender Period	20 weeks	August 8, 2017	December 22, 2017
3. Tender Award	3 weeks	January 3, 2018	January 24, 2018
4. Construction Period	4 - 5 weeks	February 12, 2018	March 19, 2018

The estimated hours of construction will be from Monday to Friday from 9:00 am to 5:00 PM.

The following equipment is anticipated to be used for the construction procedures:

- Earthwork and pipe installation: Excavators, dozers, dump trucks, compaction equipment.
- Sanitary Sewer By-Pass: Pumps, hoses, etc.

The actual work will be done by a qualified contractor to be selected through a public tendering process in accordance with the requirements of the Crown Construction Contracts Act. The specific contractors who will be involved, sources of materials, etc., cannot be confirmed until the tendering and contract award process has been carried out. Imported

materials will include, where “imported” is interpreted to mean “brought in from off the construction site”:

- Imported bedding for pipes;
- Imported granular material for roadway restoration within the pipe trench;
- Imported construction materials for pipeline installation (pipes, manholes, etc.);
- Imported topsoil and sod (for residential property restoration outside PSW Buffer zone).

Potential sources of pollutants during the construction period are anticipated to include:

- Exhaust and other emissions from construction equipment.
- Noise from construction equipment.
- Water pumped from trenches. The run-off water from trench de-watering operations will be controlled by the installation of erosion control structures and settling basins.
- Silt from disturbed surface areas. This will be minimized by requiring the contractor to install silt fences and other erosion protection devices around work area and to reinstate disturbed areas as soon as is practical.
- Petroleum hydrocarbons from possible leaks, spills or accidents from construction equipment and vehicles. This will be minimized by requiring the Contractor to have spill kits on site and to conduct daily inspections of his equipment. Contractors will be required to follow the EMP. No refueling or maintenance of vehicles will occur within 30 m of a watercourse.

All waste generated during construction will be stored in containers and removed off-site by the Contractor.

The following sequence and procedures are recommended during the construction process:

1. Mobilization and installation of environmental protection devices;
2. Installation of initial by-pass (to be maintained and subsequent by-passes installed as appropriate as work progresses);
3. Stripping, in off-road portions of the work;
4. Trenching, removal of existing line and installation of new sanitary sewer system;
5. Re-installation of services;
6. Testing of sewer;
7. Trench restoration, c/w crushed rock driving surface within trench footprint;
8. Property restoration and other related activities.

As noted above, some stripping will be required in areas where the sewer alignment is off-road. The stripped organic material will be re-used for restoration following the completion of the work, to minimize the potential of importing invasive species to the PSW buffer area.

It was noted that some of the work is necessary be within 30 m of a provincially significant wetland. Such work will be subject to the conditions of both the EMP and a future WAWA

permit to be obtained from the NBDELG, and will be protected from silt run-off by installing silt fencing that will be maintained for the duration of the construction. It is not anticipated that there are any significant wildlife habitats that will be disturbed by this construction.

The proposed Environmental Management Plan and a Sewage Management Plan have been prepared for review, and are included in Appendix “B”.

(viii) Operation and Maintenance Details:

It is to be noted that, generally, sewer piping / manholes do not require significant operation and maintenance. In a typical sewer system, the majority of the required operation and maintenance occurs at the treatment plant and lift stations, which are not being modified as part of the Saint John Street upgrades. However, it could be expected that GSSC personnel will periodically inspect, maintain and / or repair the new piping in the future. This could include items such as routine flushing of the collection system, video inspections, or actual repairs (in the event that repairs would be required in the future).

The new sewer piping has been sized based on existing conditions, based on the 2006 Atlantic Canada Wastewater Guidelines Manual. As previously stated, the existing sewers will be replaced by new PVC piping and concrete manholes, which could be expected to have a useable lifespan of 50 years or more.

The collection system is, and will continue to be, operated and maintained by GSSC personnel.

(ix) Future Modification, Extensions, or Abandonment:

It is not anticipated that the proposed new sewer line would be abandoned. Effective wastewater conveyance is an ongoing requirement. Modifications could be expected in the long-range future, such as future repairs or renewals.

(x) Project-Related Documents

In addition to location plans and drawings, the following project related documents are appended:

- Environmental Management Plan and Sewage Management Plan. (Appendix B).

It does not appear that the project would have been subject to any prior EIA assessments. The legislative requirement for EIA assessments came into effect on June 30, 1987. The initial construction of the Saint John Street sewer system would have pre-dated the Provincial EIA requirement.

3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

(i) Physical and Natural Features:

The location of the sewer upgrade is shown on the Drawings presented in Appendix A. The site is also the current sewer alignment, and is located in a fully developed residential / cottage area of Pointe du Chêne.

In general, the site has gradual and varying gradients, hovering in the + 2.0m geodetic range along the road centerline. In some areas the elevation ranges from +1.0m to +3.0m geodetic along the pipe route. In general, the site drains toward the Shediac Harbour to its north. Due to the relatively flat topography in this area, it is anticipated that the new pipes will be installed with grades of roughly 0.22%.

There is presently no flood mapping in this area, based on GeoNB mapping, although the project area is in a low-lying coastal area. However, the project activities include replacing existing infrastructure with new, and do not modify the current land use.

As noted in the previous sections, the proposed renewal includes some work within the buffer of a PSW within the Parlee Beach Drainage Area of Concern, according to GeoNB's delineation and information provided by the Department.

There is currently no municipal water system in the area. Therefore, all nearby properties are expected to have private domestic wells. Drawing 17219-1P-C101 in Appendix A indicates those located within a 500m radius of the project. Therefore, it is particularly important to maintain the sewer system in this area, in order to protect the groundwater supply and well quality.

Where the upgrade will result in the land being used for the same purposes as it currently is, it is not anticipated that the project will result in significant changes to geological features, air quality, noise levels, or wildlife, although there could be some temporary changes to noise levels and air quality during construction.

In terms of fish, wildlife, and species at risk, due to the current land use (fully developed), impacts are expected to be minimal.

(ii) Cultural Features:

As previously suggested, the Pointe du Chêne area is a major tourist destination, as is the nearby Parlee Beach Provincial Park. However, based on the proposed construction timeframe during the winter months, it is anticipated that much of the tourism will be avoided. In addition, due to nearby recreational activities, timely maintenance of the wastewater system is of increased importance.

(iii) Existing and Historic Land Uses:

As previously noted, the site is the current site of an existing sewer line, within a residential development. There are many nearby cottages and homes, including private domestic wells (refer to Appendix A for visual image of homes within 500m radius). Much of the project will occur within the existing crushed rock roadway, although a portion of the sewer requiring renewal is located off-road as indicated on the drawings in Appendix A. Therefore, once complete, the project will not result in a modification of the current land use.

4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

The primary purpose of this project is to enhance the wastewater collection system along the affected portion of Saint John Street in order to protect and improve the local environment and reduce infiltration into the GSSC's sewer system. This section will summarize possible impacts of the proposed work, and Section 5.0 will describe the measures that will be applied to eliminate or mitigate impacts.

As noted in previous sections of this document, the sewer system will remain in operation during construction through the use of pumped by-passes, in order to minimize impacts on environmental features.

Below is a detailed summary of possible environmental impacts. The attribute headings as contained in Appendix "B" of the EIA Guide will be used here. Only possible issues will be listed.

In order to expedite the review of information presented in this Registration Document, the proposed mitigation measures for each of the possible impacts described below will be indicated immediately following.

4.1 Air Quality:

- a) Dust is possible during the construction phase when soil is exposed and pipelines are being installed.

Mitigation: Construction contracts will require the contractor to apply water to control dust when directed.

- b) Odours are possible during the construction phase, primarily exhaust smells from the trucks and equipment used.

Mitigation: Work will be limited to within the 9 am to 5 pm normal working hours where practical.

4.2 Biology and Ecology:

- a) Vegetative cover: the existing vegetation on off-road areas of the pipe route will be stripped to permit the new sewer installation.

Mitigation: Vegetative cover must be removed to permit construction, stripped materials will be stock-piled and re-used on-site for restoration.

- b) Work is required within the 30m buffer of a Provincially Significant Wetland, although no work is proposed within the wetland itself. A potential impact would be silt runoff from the site while under construction.

Mitigation: Runoff protection including silt fencing will be placed and maintained during construction. Any soil areas will have cover re-established prior to silt fencing being removed. Material stripped from the site will be re-used to avoid importing invasive plant species to the site, and the contractor will be required to wash equipment prior to it being brought to the site. In addition,

work will be carried out primarily during the winter months, further minimizing the impacts.

4.3 Physical:

- a) Typical construction noise is expected during construction.

Mitigation: Work will be limited to within the 9 am to 5 pm normal working hours where practical.

- b) Surface water quantity:

Mitigation: Appropriate sedimentation and erosion control will be installed prior to construction. This includes silt fencing and properly managing water resulting from trench de-watering operations. It is anticipated that pumped water will be directed to a sedimentation basin to allow only the clear water to be discharged to the environment. In addition, TSS levels will be monitored during construction.

- c) Groundwater quality would be affected if the wastewater collection system allowed leakage of untreated or partially treated wastewater, or in the event of a spill from construction machinery.

Mitigation:

1. *Sewage:* Temporary by-passes will be employed during construction to maintain flows during construction. In addition, the new sewer system components will be tested prior to being brought into service to confirm their integrity.

2. *Equipment Spills:* The Contractor will be responsible to have on site the proper leak and spill prevention equipment prior to commencement of any work. In the event of a spill, the contaminated soils will be removed from the site and disposed of at an approved decontamination site

4.4 Community Structure:

- a) *Land Use Compatibility:* the proposed project is compatible with current land uses since it does not change the current land use. In addition, the work will be completed outside of the peak tourist season.

4.5 Lifestyle and Quality of Life;

- a) *Quality of life:* the proposed project will have an overall beneficial impact on the quality of life for the residents of and visitors to the area by maintaining the wastewater system integrity and promoting good groundwater quality.

5.0 SUMMARY OF PROPOSED MITIGATION

Mitigation measures proposed for possible environmental impacts were included in Section 4.0 in order to more conveniently connect the relationship of mitigation with possible impacts. In addition, the following general mitigation measures are presented:

- Disturbed areas will be reinstated as soon as is practical, silt fences and other erosion protection devices around excavations and stockpiles will also be used until the fully grown.
- Stripping activities and construction limits will be limited to the necessary area to complete the work.
- The stipulations of a future WAWA permit will be adhered to, for work within the PSW buffer zone.
- The construction will be inspected by the GSSC's engineering consultant.
- The Contractor will be responsible to have on site the proper leak and spill prevention equipment prior to commencement of any work. In the event of a spill, the contaminated soils will be removed from the site and disposed of at an approved decontamination site.

6.0 PUBLIC INVOLVEMENT

A public meeting will be held in the near future in order to inform the public of the plans for the sewer renewal project. The meeting will be publicly advertised in advance and direct communication will be made as required with specific groups and individuals, to enable any interested parties to attend. The public involvement will be done as required under Appendix "C" of the *"Guide to Environmental Impact Assessment in New Brunswick"*.

7.0 APPROVAL OF THE UNDERTAKING

The following technical approvals are anticipated as being required for this project:

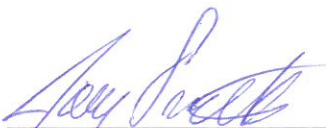
- Approval under the EIA Legislation from the NBDELG.
- Watercourse and Wetland Alteration Permit from the NBDELG for the work in the PSW Buffer zone.

8.0 FUNDING

Gas Tax Funding has been secured by the GSSC for this project.

9.0 SIGNATURE

August 17, 2017
Date



Mr. Joey Frenette, B. Sc., P.Tech
General Manager
Greater Shediac Sewerage Commission

APPENDIX A:

**Crandall Engineering Ltd. Drawings
17219-1P-C100 to C102**



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NOTES

00	AUG 03/17	ISSUED FOR EIA REGISTRATION	SML	LEL
NO.	DATE	REVISIONS	BY	APPR.

GREATER SHEDIAC SEWERAGE COMMISSION
 DES ÉGOUTS SHEDIAC ET BANLIEUES



PRELIMINARY ONLY
DATE PLOTTED: Aug 08, 2017
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE
POINTE DU CHÊNE SANITARY SEWER SYSTEM IMPROVEMENTS

HILLSBOROUGH N.B.
 DRAWING TITLE

OVERALL LOCATION PLAN

Scale
 250m 0 500m
 SCALE 1:50,000

Drawn By	Design By
SML	LEL
Checked By	Cadd Check
LEL	DWD
Sheet	1 of 1

File Name
 17219-1P-C100.DWG

Drawing No.
17219-1P-C100



500m RADIUS

LOCATION OF PROPOSED
SANITARY SEWER UPGRADES

ST. JOHN STREET

FIRST STREET

CHURCH STREET

RAILWAY AVENUE

POINTE DU CHÊNE ROAD





BRYDGES STREET

JARVIS STREET

GOULD ROAD

PARLEE BEACH ROAD

NOTES

-  REGULATED WETLAND
-  RWM 30m BUFFER
-  PROV. SIGNIFICANT WETLAND
-  PSW 30m BUFFER

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NO.	DATE	REVISIONS	BY	APPR.




PRELIMINARY ONLY
DESIGN PURPOSES ONLY
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE
POINTE DU CHÊNE SANITARY SEWER SYSTEM IMPROVEMENTS

LOCATION N.B.

DRAWING TITLE
PROPOSED NEW SANITARY SEWER UPGRADES

Scale 	Drawn By	Design By
	SML	LEL
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File Name
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Drawing No.
 17219-1P-C101

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NOTES

-  REGULATED WETLAND
-  RWM 30m BUFFER
-  PROV. SIGNIFICANT WETLAND
-  PSW 30m BUFFER

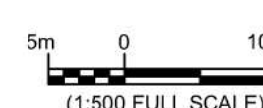
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PRELIMINARY ONLY
DATE POSTED: Aug 08, 2017
NOT TO BE USED FOR CONSTRUCTION

PROJECT TITLE
POINTE-DU-CHENE SANITARY SEWER SYSTEM IMPROVEMENTS

SHEDIAC DRAWING TITLE
RUE ST. JOHN STREET PLAN VIEW STA. 0+000 TO STA. 0+480

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Sheet	1 of 1	

File Name
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Drawing No.
17219-1P-C102

APPENDIX B:

**Environmental Management Plan
and Sewage Management Plan
Crandall Engineering Ltd. - August 4, 2017**

Greater Shediac Sewerage Commission

ENVIRONMENTAL MANAGEMENT PLAN

Pointe du Chêne Sanitary Sewer System Improvements

Submitted to:

PROVINCE OF NEW BRUNSWICK
DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT
P.O. Box 6000
Fredericton, N.B.
E3B 5H1

Prepared by:



Crandall Engineering Ltd.
1077 St. George Blvd., Suite 400
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August 4, 2017
Project No. 17219-1

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Appendix A Sewage Management Plan

SECTION 1 - INTRODUCTION

1.1 Introduction

The Environmental Management Plan (EMP) for the Point-du-Chêne sanitary sewer system improvements focuses on the activities related to the rehabilitation of the existing sanitary sewer on Saint John Street. This Environmental Management Plan is divided into the following sections:

Section 1	Introduction
Section 2	Site Work
Section 3	Waste Management
Section 4	Dust Management
Section 5	Wetland and Watercourse General Measures
Section 6	Noise Management
Section 7	Clean-Up and Re-Vegetation
Section 8	Historical Resource Protection
Section 9	Emergency Response Plan
Section 10	Environmental Effects Monitoring Plan
Section 11	Emergency Contacts

1.2 Purpose of the EMP

The EMP is an important component of the overall Project in order to protect the environment. This is a working document that is used by the project personnel in the field during construction as well as by employees of the Greater Shediac Sewerage Commission (GSSC) to ensure that commitments made in the Environmental Impact Assessment (EIA) registration document are implemented and monitored. Specifically, the purpose of this EMP is to:

- a) Comply with the conditions and requirements of the “EIA” determination received by the New Brunswick Department of Environment and Local Government (NBDELG);
- b) Provide a summary of potential environmental issues and protective/mitigation measures to be implemented during construction;
- c) Outline the GSSC’s commitment to minimize potential project environmental impacts, including those identified during the regulatory review process and the EIA.

1.3 Project Description and Schedules

1.3.1 Project Description

The GSSC is proposing an upgrade of the sanitary sewer system on Saint John Street based on the results of an inflow and infiltration study conducted over the past several years. Based on the findings of this study, the sewage system on Saint John Street is in notably poor condition and thus is designated as a high priority area for renewal. The refurbishment of this infrastructure will mitigate infiltration as well as reduce overflow potential in the downstream area.

As construction commences, a sanitary sewer by-pass will be installed to allow for the installation of the new piping. It is anticipated that each section (manhole to manhole) will be by-passed consecutively as

construction advances. Testing of the sanitary system will be conducted as construction progresses to ensure the system is watertight prior to commissioning the line. The existing +/- 450 meter-long section of reinforced concrete sanitary sewer will be reinstated with new 300-millimetre diameter PVC pipe and will maintain its current orientation within the roadway. Trench restoration will be carried out as the work progresses to minimize site disturbance.

This project will contribute to the GSSC's long term overflow mitigation strategy, protect the underlying groundwater and nearby residential wells, as well as indirectly reduce pumping and treatment costs in the future.

1.3.2 Schedule

The sanitary sewer renewal described herein is being proposed for construction with an anticipated start date of early Winter 2018. Construction will begin with the installation of the temporary sewer by-pass. Once the new sanitary main is in place, all service connections are made and the infrastructure passes all related testing, the removal of the by-pass will be conducted in conjunction with directing all flows into the new sanitary line.

The following tasks will be performed:

- Mobilization and installation of environmental protection devices;
- Installation of initial by-pass (to be maintained and subsequent by-passes installed as appropriate as work progresses);
- Stripping, in off-road portions of the work;
- Trenching, removal of existing line and installation of new sanitary sewer;
- Re-installation of services;
- Testing of sewer;
- Trench restoration, c/w crushed rock driving surface within trench footprint;
- Property restoration and other related activities.

Environmental protection will include the installation of silt fence encompassing the site prior to the start of any construction activities. This will remain in place and be maintained in good condition until the site is completely restored. In addition, it is expected that environmental impacts will be minimized by carrying out the work primarily during the winter months.

The Project is expected to be completed by Spring 2018.

1.4 EMP Communication

This Environmental Management Plan was developed for construction of the Project in accordance with all applicable federal and provincial environmental

protection legislation and regulations as of the date of its preparation. This document will be included in the tender documents for the construction contract and will become part of the contract between the GSSC and the Contractors involved.

The GSSC, through its Consultant, will communicate its commitment to this EMP at the Contract's pre-construction meeting and the status of activities under the EMP will become a standard agenda item at all project meetings. A copy of the EMP will be provided to the Contractor's foreman, the GSSC's personnel and the Consultant's resident services staff.

SECTION 2 - SITE WORK

All activities relating to site work and sanitary sewer renewal will adhere to all relevant regulatory requirements, including but not limited to, the Environmental Impact Assessment Regulation under the Clean Environmental Act, Migratory Birds Convention Act, Species at Risk Act, and the Canadian Environmental Protection Act.

2.1 General

Appropriate measures will be made to diminish the risk of introducing invasive species to the area. These measures include:

- a) Utilizing onsite material where practical to eliminate the need to import select material. In this regard, it is intended that within off-road areas of the wetland buffer zone, organic materials will be stripped, stock-piled, and re-used for property restoration .
- b) Inspecting machinery and cleaning with a pressure water hose if necessary, as well as regular equipment inspection (before, during, and after construction), to ensure that vegetation is not transported from one site to another.
- c) All machinery shall be cleaned before being brought on-site.

2.2 Erosion Protection

With respect to erosion protection, the mitigation measures listed below shall be followed:

- a) Install sediment fence and erosion control structures as shown on the Contract drawings for all activities potentially resulting in an increased presence of sediment;
- b) All erosion and sediment control devices shall be inspected and maintained on a regular basis or after any significant rainfall until the Project site is permanently stabilized;
- c) Erodible soils shall be covered with hay mulch if the area is not actively worked for more than one (1) week.

2.3 Dewatering in Work Areas

Work areas, particularly the trenching required for the sewer replacement, may require dewatering during construction. The following measures will be implemented, as required, in order to minimize the impact of dewatering:

- a) All pumped water will be directed to a sediment control pond to remove silt from, and reduce turbidity of, water pumped from work areas before discharging to nearby ditches with erosion protection structures;
- b) Total suspended solids (TSS) of the pumped water should be monitored throughout the construction process;
- c) Where possible, water should be discharged to vegetated work areas in order to further reduce any potential impacts on a wetland and/or watercourse;
- d) All discharged water will be encouraged to follow natural surface drainage patterns.

2.4 Pumps and Generators

A variety of equipment such as water pumps, hoses and generators are used during construction activities as well as accompanying support and supply facilities. Environmental concerns associated with the operation and use of such equipment include accidental spills of fuel or lubricating oil and chronic leaks, which may contaminate local water bodies and surface soils.

The following measures will be implemented in order to prevent or minimize potential impacts related to issues or equipment use and maintenance.

- a) Fuel shall not be stored near generators or located within 30 m of a watercourse or wetland;
- b) Drip pans shall be placed underneath pumps and generators located near watercourses and wetlands where practical;
- c) Hoses and connections on all equipment shall be inspected daily for leaks and drips;
- d) All leaks shall be reported immediately to the on-site supervisor, and shall be addressed to remediate the problem, as well as remediate the affected areas as discussed in Section 9: Emergency Response Plan;
- e) Refueling and maintenance of equipment must take place in designated areas, on level terrain, a minimum of 30 m from any surface water bodies, wetlands, and potable water supply wells, with a collection system to contain oil, gasoline and hydraulic fluids.

2.5 Stripping & Grading

The stripping, and grading activities for construction are the most critical with regard to the control of erosion and sediment transport. Stripping consists of the removal of topsoil, and grading involves the trench restoration associated with site leveling and drainage control of the roadway.

- a) All construction activities, including clearing and stockpiling of materials will take place outside of the 30 meter buffer from watercourses and wetlands as identified on the contract drawings except where specifically required by the work;
- b) Stripping of the organic vegetation mat and/or the upper soil horizons will be minimized and, where possible, they will be left in place;
- c) The stripped organic vegetation mat and upper soil horizon material will be used, where practicable, to cover exposed areas and promote re-vegetation within the wetland buffer zone;

- d) Stripping activities near watercourses and wetlands, particularly areas with steep slopes, should be avoided if possible and shall be minimized where specifically required for the work;
- e) Where work is to occur within 30 m of a watercourse or wetland, the work must adhere to the conditions set forth in the NBDELG's WAWA permit;
- f) The length of time that stripped areas are left exposed to the elements will be minimized to prevent unnecessary erosion. Refer to Section 2.2: Erosion Protection for further detail;
- g) Stripped material may be temporarily stored in adjacent areas of the Project, but shall be stored outside the 30 m buffer of any watercourses or wetlands and within the silt fence perimeter shown on the drawings. Appropriate surface water and sedimentation control measures will be implemented as needed for stockpile locations.

SECTION 3 - WASTE MANAGEMENT

All waste generated during this project will be managed in accordance with all relevant regulatory requirements.

3.1 Descriptions of Effects of Wastes

Solid waste (e.g., domestic waste, paper, cardboard, wood and other construction debris), if not properly controlled and disposed of, will be unsightly and may cause human safety and health concerns and could result in a conflict with wildlife.

The release of untreated sewage is a concern to human health, drinking water quality, and aquatic ecosystems. No untreated sewage will be discharged during the construction activities.

There will be fuels and hazardous materials used in association with equipment operation and maintenance activities, which occur during construction activities. The major concern regarding the use of hazardous substances is their uncontrolled release into the environment through spillage, and the subsequent adverse effects on the terrestrial, and aquatic habitat, species, soil, groundwater quality and human health and safety.

It is noted that biodegradable alternatives to petroleum-based hydraulic fluids for heavy machinery are commonly available. The use of these biodegradable hydraulic fluids is encouraged, where possible.

3.2 Handling, Storage and Disposal

3.2.1 Solid Waste

The following measures will be implemented in order to mitigate potential impacts related to solid waste disposal:

- a) All domestic solid waste will be collected, properly stored, removed, and disposed of at an appropriate site;
- b) The site and working area will be kept clear of all scraps and garbage;

- c) Materials such as paper, cardboard, wood, scrap steel and metal, and tires will be collected and offered for recycling where practical. All materials not able to be recycled will be disposed of in an approved facility;
- d) Waste accumulated on site prior to disposal shall be placed in a secured location, so as to not pose a threat or concern to human health and safety, or wildlife.

3.2.2 Sewage

The following measures will be implemented in order to mitigate potential impacts related to sewage disposal.

- a) Sanitary waste from construction activities will be handled using portable restrooms. These will be self contained units, and will not require additional water;
- b) The portable restrooms located at the site will conform to the Canada *Occupational Health and Safety Act* and any city ordinances;
- c) All septic waste will be collected by a licensed waste disposal operator and transported off site for disposal at a proper handling facility;
- d) The switchover from the existing sanitary system to the temporary by-pass system as well as the switchover from the by-pass to new sanitary system will be done without discharging raw sewage into the environment. A Sewage Management Plan has been developed to describe these details.

3.2.3 Fuel

The highest protocols will be implemented in association with the handling and storage of hazardous materials and hydrocarbons as mentioned in Section 9: Emergency Response Plan. These will include:

- a) Transportation, storage and use of fuels will be conducted in compliance with government laws and regulations, including New Brunswick Regulation 87-97 Petroleum Product Storage and Handling under the *Clean Environment Act* and the *Transportation of Dangerous Goods Act*;
- b) Machinery will be checked on a daily basis for leakage of lubricants or fuel and must be in good working order;
- c) Refueling and maintenance of equipment will take place in designated areas, on level terrain, a minimum of 30 m from any surface water or wetland, with a collection system to contain oil, gasoline and hydraulic fluid. In addition to the condition stated above, equipment maintenance (greasing, refueling, and oiling operations) shall not be performed within ditches;
- d) Ensure crews are aware of contingency plans in advance of the start of construction work;
- e) All spills or leaks will be promptly contained, cleaned up and reported to the 24 hour environmental emergencies reporting system;

- f) To ensure preparedness in the case of a hazardous spill, resources (skimmer, absorbent pads and overpack drums - refer to 9.3) required will be obtained and kept on site;
- g) Greasy or oily rags or contaminated materials will be disposed of in an appropriate fire resistant receptacle. The contractor will be responsible to send the contaminated materials to the appropriate waste disposal site;
- h) Waste oils and lubricants will be retained in a tank or closed container and be disposed of in an approved manner as directed by NBDELG.

SECTION 4 - DUST MANAGEMENT

Excavated and work areas may produce dust in the time prior to the re-vegetation of the disturbed areas. The environmental concerns related to dust include human health effects and potential impacts on aquatic ecosystems and vegetation. Dust management will be conducted in accordance to the Air Quality Regulation-*Clean Air Act*. The measures provided below will be taken in order to mitigate potential impacts associated with dust management.

- a) Cover truck loads of materials which could generate dust as necessary;
- b) Dust from construction activities will be controlled where possible by using frequent applications of water or calcium chloride. Waste oil will not be permitted to be used for dust control;
- c) Applications of calcium chloride shall be in accordance with the Guidelines available from Environment Canada.

SECTION 5 - WETLAND AND WATERCOURSE GENERAL MEASURES

5.1 Mitigation Measures

Mitigation measures identified within the EIA have been included within this section, along with additional mitigation means:

- a) Prior to construction within the 30 m buffer of wetlands and/or a watercourse, install sedimentation control along each side of the buffer zone wherever necessary. These devices shall be placed as shown on the drawings unless otherwise specified by the NBDELG and shall be maintained until the area has been stabilized and as approved by the Engineer;
- b) Refueling of equipment shall take place outside of the 30 m setback buffer from any wetland and/or watercourse, with the exception of pumps used to dewater the site;
- c) Work near wetlands and/or watercourses will be performed in a way such that deleterious substances including, but not limited to, sediment, fuel and oil do not enter a watercourse or wetland;
- d) Machinery must be checked for leakage of lubricants of fuel and must be in good working order. Equipment maintenance must take place in designated areas, on level terrain, a minimum of 30 m from any surface water or wetland, with a collection system to contain oil, gasoline, and hydraulic fluids;
- e) Basic petroleum spill clean-up equipment shall be kept onsite during construction;

- f) Erosion control structures are to be used as shown on the drawings and where required as a result of the construction work;
- g) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;
- h) Construction debris and excavated material generated during the Project must be prevented from washing downstream, removed from the wetland and/or watercourse and Project area and disposed of in the proper manner;
- i) Visual monitoring of all wetlands near the work area will take place prior to the end of each week, and during and after significant rain events, and any work necessary to ensure the effects are minimized will be undertaken;
- j) There shall be no lay-down areas, grubbing and waste disposal piles, equipment/machinery storage, material/rock/fill storage, bullpens, yarding, etc. located outside the area fenced in with silt fencing as shown on the drawings;
- k) Disturbed areas will be reinstated as soon as is practical, silt fences and other erosion protection devices around excavations and stockpiles will also be used. All hydroseeded areas will also be hay mulched;

5.2 Culvert Installation (General Information)

Watercourse crossings are structures at locations where an access route meets and traverses a wetland and/or watercourse, or a drainage route to same. In this project, this refers to culverts. Culvert replacement may be required depending on existing culvert conditions:

- a) The culvert is to be installed so as to avoid ponding at the entrance which may cause property damage, accumulation of floating debris, culvert clogging, saturation of fills, or detrimental upstream deposits of debris and alteration of the fish habitat;
- b) The outlet is designed to resist undermining and washout;
- c) The site selected for the culvert crossing shall have a uniform gradient;
- d) The culvert installation shall be done in accordance with the Contract drawings and specifications, and to any conditions required;
- e) The invert of the culvert structure must be set a minimum of 150 mm below the channel bottom level at both the upstream and downstream ends to ensure that the water depth inside the culvert will be at least equal to that in the watercourse during low flow conditions;
- f) Any excavation required for the culvert installation must be done with a backhoe or an excavator;
- g) Prior to the onset of culvert installation, sediment control works should be installed to prevent sedimentation of the wetland and/or watercourse and be maintained until a vegetative cover is established;
- h) The culvert must be installed on firm ground. A soft foundation should be replaced with clean, granular material to prevent sagging;
- i) The culvert must extend a minimum of 0.3 meters beyond the upstream and downstream toe of the fill placed around the structure;
- j) All exposed erodible material resulting from cut and fill operations within 30 m of a watercourse must be stabilized to prevent siltation;
- k) To prevent erosion, outlets and inlets shall be rip-rapped at both ends;
- l) Backfilling material should be used which is of a texture that shall support the culvert and limit seepage and subsequent washing out;

- m) Fill and construction debris shall be removed from the culvert area to a location above the peak flow level to prevent its entry into the stream;
- n) No machinery may be stationed in the wetted portion of the channel; machinery operating from the shore may reach into the water with an extension;
- o) Sediment barriers, such as silt fences or hay bales, must be placed along the toe of the slope of the fill material used to construct the approaches to the structures;
- p) All exposed erodible material resulting from cut and fill operations within 30 m of the wetland and/or watercourse must be immediately stabilized to prevent siltation;
- q) All erosion and sedimentation control measures will be inspected and maintained prior to the end of each workday;
- r) Weather forecasts will be monitored and mitigation measures will be maintained or modified appropriately if heavy precipitation is anticipated.

SECTION 6 - NOISE MANAGEMENT

A variety of noises associated with heavy construction activity can cause negative effects on wildlife resources in terms of their distribution and abundance. Noises associated with heavy equipment are temporary in nature.

Best management practices shall be implemented, wherever possible, to minimize potential impacts arising from a variety of noise sources. Mitigative measures taken will include the following:

- a) All vehicles and generators will have exhaust systems in good condition without leaks and be inspected regularly; mufflers will be operating properly;
- b) Noisy activities shall be scheduled to be done during normal daylight hours on workdays;
- c) Proper functioning and monitoring of noise abatement equipment.

SECTION 7 - CLEAN-UP AND RE-VEGETATION

The following will be performed in order to mitigate impacts which might result from construction activities:

- a) As soon as possible following the construction activities, identify areas requiring planting or seeding for re-vegetation purposes. These will include:
 - Areas adjacent to a watercourse where erodible soil is exposed and where mechanical stabilization techniques are not deemed to be sufficient to guarantee stability or prevent uncontrolled introduction of sediment to a watercourse.
 - Any other areas deemed by the Engineer and as required by NBDELG to require quick re-vegetation.
- b) Restoration of lands disturbed during construction will commence as soon as possible after construction activity has ceased. Although seasonal weather conditions may delay seeding, it should be commenced as soon as conditions permit. Restoration of this site will also include paving of roadway and site parking areas;

- c) Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in re-vegetation efforts are not known to be invasive;
- d) The areas subject to restoration activities will be visually inspected periodically to ensure adequate results. Additional reclamation activities will be performed as deemed appropriate;
- e) Necessary interim measures will be implemented to prevent erosion prior to re-establishment of vegetation;
- f) Silt fences and erosion control structures will remain in place until vegetation and resurfacing has matured to the point where erosion carried into watercourses is no longer a concern.

SECTION 8 - HISTORICAL RESOURCE PROTECTION

It was noted at the EIA Registration phase that the sanitary sewer renewal is being constructed entirely on lands that are currently developed as residential/cottage areas and have no identified historical or cultural significance.

SECTION 9 - EMERGENCY RESPONSE PLAN

Contingency plans to deal with accidental spills have been developed and are presented in this Section. They will be modified as required during the execution of the Project. They are as follows:

9.1 Introduction

The transfer of fuel from tanker trucks to storage tanks, vehicle accidents involving heavy equipment, and leaks from fuel storage tanks and associated lines all offer the potential for fuel oil spills. Other hazardous liquid products associated with operations, such as hydraulic fluids, lubricating oil, and solvents will be used in relatively small quantities.

9.2 Action Plan

In the event of fuel or hazardous material spill, refer to the following procedures outlined below:

- a) The individual who discovers a leak or spill shall immediately call for help and then attempt to stop and contain the leak or spill if safe to do so;
- b) Any spill or leak on land or water (regardless of size) should first be reported immediately to the Contractor's foreman and the Engineer, upon implementation of (a) above.

The Contractor's foreman shall halt work in the immediate area if necessary and report the spill to the project manager. In case of an environmental emergency, all calls should be directed to the 24-hour environmental reporting system (Maritime Provinces: 1-800-565-1633).

If the spill occurs near or in the water, the Canadian Coast Guard will be notified and specific action will be taken.

The on-site supervisor will have the full authority to take appropriate action without unnecessary delay. The following information shall be provided:

- i. Name of person reporting the spill and phone number;
 - ii. Time of spill or leak;
 - iii. Time of detection of spill or leak;
 - iv. Type of product spilled or leaked;
 - v. Amount of product spilled or leaked;
 - vi. Location of spill or leak;
 - vii. Source of spill or leak;
 - viii. Type of accident - collision, rupture, overflow;
 - ix. Owner of product and phone number;
 - x. If the spill or leak is still occurring;
 - xi. If the spill or leaked product is contained, and if not, where it is flowing;
 - xii. Cleanup efforts already underway;
 - xiii. Wind velocity and direction;
 - xiv. Temperature;
 - xv. Proximity to water bodies, wells, water intakes, and buildings;
 - xvi. Snow cover and depth, terrain, and soil conditions.
- c) The Contractor's foreman shall assume overall responsibility of coordinating a cleanup and maintaining this contingency plan up-to-date. Any spills that occur should be remediated to meet or exceed regulatory requirements. The Contractor's foreman will, in consultation with the regulatory authorities:
- i. Assess site conditions and environmental impact of various cleanup procedures;
 - ii. Assess potential for fuel recovery versus burning;
 - iii. Deploy on-site personnel to mobilize pumps and empty appropriate storage drums to the spill site;
 - iv. Deploy on-site personnel to build containment dikes and commence dumping contaminant in drums or if drainage system is involved, leakage will be isolated by digging a sump, deploying a pollution boom around area or a combination of both;
 - v. Apply absorbents or utilize skimmers as necessary to prevent the spill from spreading;
 - vi. Dispose of all contaminated debris, cleaning materials, and absorbents by placing in appropriate containers and label for disposing;
 - vii. Take all necessary precautions to ensure that the incident does not recur.
- d) The continuing monitoring of the site of the accidental release, and damage reporting will be the responsibility of the contractors.

9.3 Resource List

During construction, the following resources will be available at appropriate locations and distance from the Project site to readily mitigate accidental releases of stored fuels and/or hazardous materials.

- a) Skimmer (for spills on water);
- b) Suitable quantities of absorbent pads;
- c) Overpack drums containing sorbent pads, sorbent booms, splash suits, shovels, rakes, tool kit, sledgehammer, buckets and stakes and flagging tape;
- d) Emergency numbers and contingency procedures.

Small spill response kits and equipment will be strategically located in construction areas where materials handling or equipment activity presents and increased risk of spill (*i.e.*, refueling locations and hazardous waste storage areas). These kits shall be checked on a regular basis for content, and items shall be replaced immediately after their use.

SECTION 10 - ENVIRONMENTAL EFFECTS MONITORING PLAN

In the event that an environmental effect should occur on site certain measures will be taken in order to monitor and verify the effectiveness of the mitigation steps implemented on this project.

- a) If the presence of sediment within the water is visible or questionable, a sample will be collected upstream of the construction zone, at the construction site and downstream of the construction site which shall be analyzed for total suspended solids (TSS);
- b) Hoses and connections on all equipment shall be inspected daily for leaks and drips, with special attention to those located near wetlands and/or watercourses;
- c) Visual monitoring of all wetlands will take place prior to the end of each week and any work necessary to ensure the effects are minimized will be undertaken;
- d) All vehicles/generators will have exhaust systems inspected regularly and mufflers will be operating properly to better manage noise on the site;
- e) The areas subject to reclamation activities will be visually inspected periodically to ensure adequate results. Additional reclamation activities will be performed as deemed appropriate;
- f) The continuing monitoring of the site of the accidental release of a leak and damage reporting will be the responsibility of the contractor;
- g) The TSS as well as the 5-day carbonaceous biological oxygen demand (CBOD₅) entering a receiving stream will be carefully monitored at the beginning of construction by the Contractor.

SECTION 11 - EMERGENCY CONTACTS

In the event that an emergency should occur on site the following is a list of key contacts for each part of the project:

- | | |
|--|--|
| • Ambulance/Fire/Police: | 911 |
| • Canadian Coast Guard: | 1-800-565-1633 |
| • Contractor: | To be determined |
| • Crandall Engineering (Chris Gallant, P. Eng.): | 506-857-2777 (Office)
506-389-6933 (Direct) |
| • Southeast District - RCMP | 506-387-2222 or 911 |

- Enbridge Gas Pipeline: 1-866-763-5427
- NBDELG - Region 3 - Moncton: 506-856-2374
- NB Power: 1-800-663-6272
- GSSC General Manager - (Joey Frenette) 506-532-7025

The complete project address is as follows (accessible from Route 15 and local streets):

Point-du-Chêne Sanitary Sewer System Improvements
Saint John Street
Point-du-Chêne, N.B.
E4P 5G5

Furthermore, a complete and up to date list of contacts (including the superintendent, foreman and inspector) will be given to the successful Contractor at the start of the project as part of the safety requirements.

Appendix A: Sewage Management Plan

Introduction

Protection of the surrounding environment is an integral part of the proposed construction on Saint John Street. In order to maintain current wastewater collection in the area, a sanitary by-pass will be required while the new sanitary main is constructed. The scope of work and concept for the “Sewage Management Plan” will be described here. This will cover all components required to replace the existing sanitary system and implement the new system.

Drawing 17219-1P-C102 depicts the location of the sanitary renewal on Saint John Street as well as its relation to the wetland and the respective 30m buffer zone. Approximately 85 m of the sanitary replacement falls within the buffer zone. The following paragraphs describe the sequence of how work will be completed as the existing sewer is removed and new components are installed.

Sanitary By-Pass

A sanitary by-pass system will be implemented to ensure no disruption of wastewater collection service in the area. Excavation will occur systematically, in which flows upstream of the excavation will be re-directed by installing a pump in the upstream manhole and pumping flows to an appropriate manhole downstream of the repair area. From this point, the flows will continue through the existing pipe network as usual, toward the wastewater treatment plant. As the new sanitary line is installed and recommissioned, the by-pass will be removed and installed in the next section undergoing renewal.

Excavation & Dewatering

Excavation of the existing sanitary system will be conducted to the approximate depths indicated on the Contract Drawings. Subsequent to the installation of the sanitary sewer and the re-connection of services the trench will be backfilled, following standard construction practices. Testing will be carried out as the work proceeds. All relevant open ends will remain blocked off with watertight plugs and adequately blocked to safely withstand the pressure in the newly laid pipeline. Once the section has passed all necessary testing, it will be brought into service.

The construction process and sequence proposed herein will prevent the discharge of untreated wastewater to the environment. Utilizing a sanitary by-pass will avoid potential issues associated with volumes of untreated sewage leaking into the environment and will be contained to a small section (manhole to manhole). All required testing will be conducted to ensure no leaks in the pipeline per recommissioned section prior to commencing construction on the next section of sanitary sewer.